US EPA RECORDS CENTER REGION 5

HIMCO DUMP SUPERFUND SITE

1. CONSTRUCTION DEBRIS AREA-IMPACT TO ADJACENT PROPERTIES

- 1.1. GENERAL. This paper has been prepared to summarize potential impacts that the proposed remedial action will have on the residential area immediately adjacent to the Himco Dump Superfund Site. Any remedial response at this site will require some type of action with respect to the "Construction Debris Area." The Construction Debris Area (CDA), as defined in the 1991-1992 remedial investigation/feasibility study (RI/FS), encompasses a large area of residential property. Figure 1 shows the location of the CDA with respect to the landfill proper. Drawing R-1 shows the approximate limits of the CDA and affected properties and owners. The following sections of this paper discuss the impacts in greater detail.
- 1.2. CONSTRUCTION DEBRIS AREA DESCRIPTION. The RI/FS reports and subsequent documents pertaining to the site delineated an area filled predominantly with nonnative soil mixed with construction debris. This area, commonly referred to as the "Construction Debris Area," is located adjacent to the south-central and southwest edge of the landfill proper. A number of trenches were excavated in or near this area to evaluate the type and extent of waste material. The trench locations are shown on Drawing R-1 and the trench logs are provided in Appendix A. A summary of the trench logs is presented in Table 1. (Note that the drawing R-1 refers to "Trench 7&8, Trench 12&13, and Trench 16." The trench logs for these borings have the following designations: Trench No. 7&8, Trench No. 12 & 13, and Trench No. TP-16. In this paper, a "TP-" designation is used when discussing these trenches.)

The data generated during the RI/FS indicates that construction type waste was placed in this area to a depth of over 9 feet below ground surface (Refer to trench logs TL-3, TL-5, TD-1, TD-4, TD-5, TP-7&8, and TP-12&13). Many of the trenches appear to have been terminated prior to reaching the bottom of the waste because leachate or water was encountered and/or the trench sides were caving in. Consequently, the actual depth of waste may be greater than indicated on many of the logs.

Of note is that trenches TD-4, TL-7, and TP-7&8 are located outside of the limits of the landfill and construction debris area as defined in the RI/FS. The logs for trenches TD-4 and TP-7&8 clearly show that a substantial amount of construction debris was encountered. In Trench TL-7, which is the trench located closest to County Road 10, a black plastic bag was encountered at 7 feet below the ground surface. Although no substantial waste was encountered in this trench, the presence of the plastic bag indicates that fill material was potentially placed over a much larger area than identified in the RI/FS.

The waste that was encountered in the trenches was typically comprised of concrete rubble, plastic, cardboard, insulation, wood, glass, bricks, metal, asphalt or petroleum mixture, rubber, and other debris. During the RI, a "hot spot" (an isolated area of highly concentrated contaminants) was identified at the southwestern border of the landfill adjacent to the CDA as shown on Figure 1. An emergency action was undertaken in 1992 to remove this source. Although other hot spots such as this have not been identified, there is the potential for similar areas to exist within the CDA.

In 1995, several boring were advanced near this area as shown on Drawing R-1. Debris was encountered in two of the borings, B-4 and WT116-B. The waste extended to a depth of approximately 6 feet below the ground surface in these borings. Draft logs from these borings are provided in Appendix B.

In summary, the trenching program undertaken during the RI/FS did not fully delineate the depth or areal extent of waste in the CDA. Historic information suggests that the material was placed to fill in previous low areas/wetlands and could cover a larger area than previously identified. Consequently, the interpreted limits of the debris area are approximate and could vary considerably from that shown on the drawing and figure. Drawing R-1 shows a zone of potential impact to the residential properties. This zone illustrates that the limits of the construction debris area are approximate and the actual amount of impacted land could vary considerably.

1.3. REMEDIAL ACTIONS AND IMPACT ON ADJACENT PROPERTIES.

- 1.3.1. General. Several remedial action alternatives have been developed for the Himco Dump Superfund Site. The alternatives consist of constructing a landfill cap over the landfill proper and the CDA or capping the landfill proper and excavating the waste from the CDA. Either of this alternatives require property acquisition from the land owners south of the landfill. These alternatives are discussed in more detail below.
- 1.3.2. Alternative No. 1: Capping the Landfill and the CDA. In this alternative, a landfill cover system (as prescribed by State and Federal regulations) would be constructed over the entire landfill including the CDA. The exterior perimeter of the landfill cap would extend onto the residential properties south of the CDA as shown on Drawing R-1. Additional land would be required beyond the limits of the cap for vehicle access, fencing, and right-of-way requirements. Any construction debris encountered during construction outside of the perimeter of the cap would be excavated and relocated under the cover system.
- 1.3.3. Alternative No. 2: Capping the Landfill and Excavating the CDA. In this alternative, a landfill cover system (as prescribed by State and Federal regulations) would be constructed over the landfill proper. The waste materials in the CDA would be excavated and relocated under the final cover system. The removal of all materials from the CDA will require an extensive excavation which will extend into the residential properties as shown on Drawing R-1. The limits of the excavation may vary from those shown depending on the extent of waste encountered. Additional land would be required beyond the limits of the cap and excavation for vehicle access, fencing, and right-of-way requirements. A summary of the approximate area of land required from each property owner is provided in Table 2. Since both alternatives are dealing with the same area of construction debris, the land requirements are approximately the same. Table 3 provides a summary of the approximate distances from major structures on the properties to the interpreted limits of the CDA. See Figure 2 for a typical cross-section of CDA excavation alternative.

1.4. COST ESTIMATES.

1.4.1. General. Preliminary estimates have been prepared to assess the cost to excavate waste from the construction debris area and then backfill the excavation with

clean soil. Costs were developed for both a three foot excavation and for an excavation that extended to ground water. Both estimates assumed that soil would be excavated to the limits defined by Alternative No. 2 as presented above. Each alternative assumed the waste could be disposed of below the final cover system for the landfill. Disposal of the waste at another landfilling facility would be considerably more expensive and may be restricted due to chemical contaminants. Backfill material was assumed to be obtained from an off-site borrow source.

The cost for excavation and backfill for each parcel of impacted land was estimated for two alternatives. The two alternatives were 1) three foot deep excavation and 2) excavation to ground water. Ground water was estimated at 12 feet below ground surface based on water level measurements collected from monitoring well WT-111A. In August 1995, ground water was measured at approximately elevation 753 in this well. The typical ground surface elevation in the residential area. Ground water fluctuations may result in higher or lower ground water levels over time.

To calculate a volume, the surface area of impacted land from each property owner was multiplied by the respective assumed depth (3 feet or to ground water [12 feet]). This assumption results in vertical sideslopes along the exterior boundaries of the excavation. In actuality, the sideslopes would be graded back to a stable grade. However, for preliminary estimates and considering the unknown nature or the extent of waste, these assumptions are acceptable and allow for a comparison of costs. A summary of the costs of excavating waste and backfilling the resulting hole for each property is presented in Table 2.

FIGURES

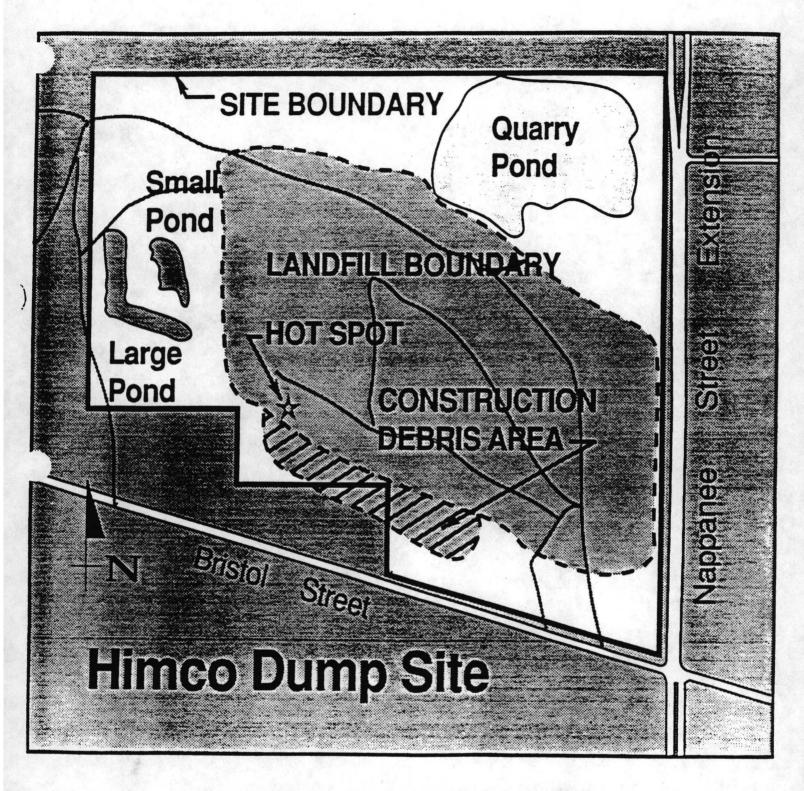
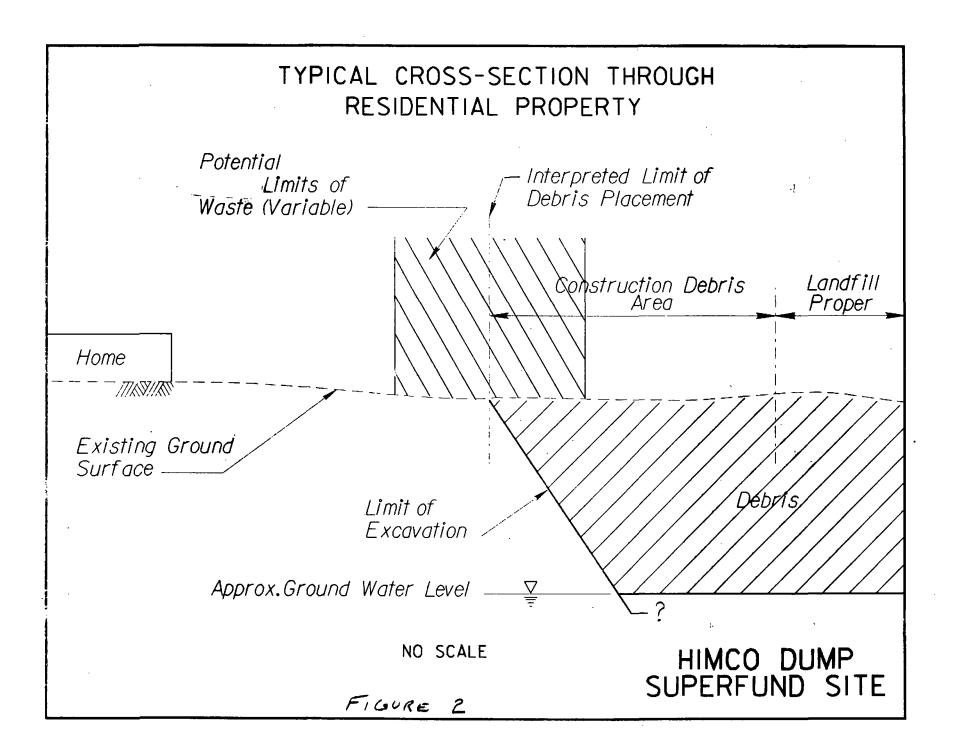


FIGURE 1. GENERAL SITE PLAN



TABLES

TABLE 1 HIMCO DUMP SUPERFUND SITE

TRENCH LOG SUMMARY TABLE

Trench No.	Debris Depth	Debris Type	Notes
TP-7&8	12+	Constr/Munic	Predominantly construction debris w/ some municipal
TP-12&13	10	CaSO4/Const	Predominantly CaSO4 overlying thin layer construction
TP-16	4+	Constr/Munic	Predominantly construction debris w/ some municipal
TP-17	2+	CaSO4/Constr	Thin layer CaSO4 (1ft) over construction debris
TD-1	9+	CaSO4/Mixed	Thin layer CaSO4 (1 ft) over municipal & construction debris
TD-2	4+	Constr/Munic	Predominantly construction debris w/ some municipal
TD-3	14+	CaSO4/Munic	Thin layer CaSO4 (1 ft) over mix of municipal and sludges
TD-4	. 11	Constr.	Construction debris mixed with sand
TD-5	9	Constr.	Construction debris with some sand
TD-6	4+	Constr.	Construction debris
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TL-2	6+	CaSO4/Mixed	Thin layer CaSO4 (1 ft.) with municipal and some construction
TL-3	11	Const/Sludge	Construction debris mixed with sand, possible sludge
TL-4	5+	Constr.	Construction debris mixed with sand
TL-5	12	Const/Sludge	Construction debris mixed with sand, possible sludge
TL-6	4	Const	Construction debris mixed with sand
TL-7	7+	Sand	Fill sand

¹ Depth below the ground surface in feet to the bottom of waste. Depth may vary within a trench.

TABLE 2 HIMCO DUMP SUPERFUND SITE SUMMARY OF AFFECTED RESIDENTIAL PROPERTY OWNERS AND

EXCAVATION/BACKFILL COST ESTIMATES

Property Owner	Approx. Exc. Area (acre) ¹	Approx. Exc. Volume (CY) ² 3' Excavation	Estimated Cost ³	Approx. Exc. Volume (CY) ⁴ 12' Excav.	Estimated Cost⁵
Rumfelt	0.14	700	\$10,200.00	2,300	\$40,800.00
Klein	0.23	1,100	16,100.00	3,700	64,200.00
Geesaman ¹	0	0	0	0	0
Coulry	0.32	1,550	22,700.00	5,200	90,800.00
Kolanowki	0.37	1,750	25,600.00	5,800	102,300.00
Bowers (1)	0.32	1,550	22,600.00	5,200	90,800.00
Bowers (2)1	0	0	0	0	0
Bowers (3)	0.16	750	10,900.00	2,500	43,800.00
Bowers (4)	0.13	600	8,800.00	2,000	35,000.00

NOTES:

² Approximate volume of excavated waste in cubic yards.

Estimated cost of waste excavation and placement under cap = \$3.71 per C.Y. Estimated cost of off-site borrow and placement in excavation = \$9.48 per C.Y.

⁴ Approximate volume of excavated waste in cubic yards.

¹ Approximate required surface area for excavation only in acres. Actual limits will be defined during excavation due to uncertainty of waste boundaries. Additional area will be required for access, etc.

³ Estimated cost for excavating and backfilling a 3 foot excavation. Assumes waste relocating under cap and construction of cap occurs concurrently with waste removal activities. Relocating waste to another landfill could be considerably more expensive.

⁵ Estimated cost for excavating and backfilling a 12 foot excavation.

TABLE 3 HIMCO DUMP SUPERFUND SITE APPROXIMATE DISTANCE FROM HOMES TO INTERPRETED EXTENT OF CONSTRUCTION DEBRIS AREA

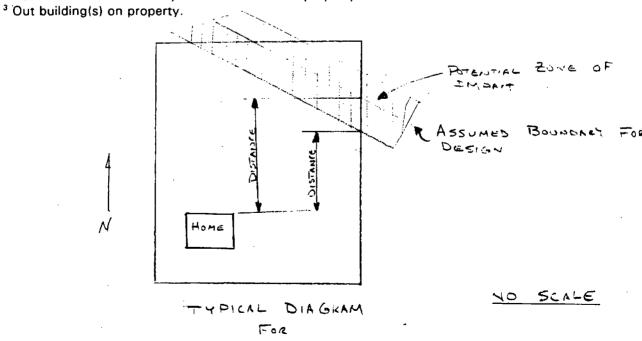
Property Owner	Distance to Southern Edge of Zone of Potential Impacts (Feet) ¹	Distance to Assumed Landfill Limits for Design (Feet) ¹
Rumfelt	70	125
Klein	160	210
Geesaman²	N/A	N/A
Coulry ³	45	100
Kolanowki	30	85
Bowers (1) ²	N/A	N/A
Bowers (2) ³	60	N/A
Bowers (3)	40	90
Bowers (4) ²	N/A	N/A

NOTES:

¹ Distance is measured from the closest major structure on the property to the closest point that the specified boundary crosses the property (See diagram below). Distances from out building(s) not calculated.

DISTANCE MEASUREMENTS

² Assumed landfill boundary does not cross this property.



APPENDIX A SELECTED TRENCH LOGS

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		Brown layer of sand, black plastic bags blue bags	 	<u> </u>
	3	Garbage Bags wood 1/2" x 6"	 	
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	25	<u> </u>					ــــــــــــــــــــــــــــــــــــــ						<u> </u>
Wa Br	ter ne	ear base ganic ma	14 ft, s	potty & j	pouring .	in - slow	h bitumi vly. Top material	soil pla	aced on	top of ba	ack fill	ed tren	ch

OVA avg. 20-30 ppm in BZ 100ppm max. in BZ.

		TRENCH LOG FORM		
Donolluc comments		1 1		
HOLEOF: HI	026.02	mo , Phase II EXCAVATOR Mathes; C.G.		
mie:Q9	<u>-11-91</u>	TRENCH NO: 10-4		
SHIO COORD:		T. N E N E TRENCH LENGTH: 15 FT TO 11 FT deep - N E N E TRENCH WOTH:		•
CONTROL MONAME		OCRD: N E N E		
	THERETE	TRENCH LENGTH & T)	·	
BTRATA CHANGE OF WATER LEVEL	DEPTH	1 2 2 4 0 7 0 0	DRIJM DLAMTITY	REMARK NO.
		brown sand dry/ glass bottles;100ml/ wood	Ö	
	_1	debris wood /filled white bricks plastic sheets, (pharmacy) Bottles, glass clear & brown		
	2	bricks plastic sheets, (pharmacy) Bottles, glass clear & brown		
		wood 6"x1/2" plastic sheets, numerous bricks, wires		
	3	sand, content increasaing, occasional debris	 	ļ
	4	Sundy content 2.02.000237	 -	
	5		 	
	6	sand, brown (SP) fill trace of		
	 	glass, bricks, wood, plastic sheets		
	 	grass, briens, wood, prasere sieces	 	
	8			
	9		 	
	10		 	ļ
	11	Wet, gray sand - fine to coarse (SW)	 	
	·		-[
	— —		J	l
FE,MAJess.				
W	ater 0	11 ft. Debris 6" to 5 ft. heavy & sand increase beyond 5 ft.		
		readings at any time.		

<u> </u>		TRENCH LOG FORM		
Nonahur				
U.	S. EPA	BHEET 1 of 1		
PHOJECT: HIL		ip, Phase II EXCAVATOR Mathes		
MICHECT NO.: 20	026,02	LOG BY: K. Elias		
DATE:09-1 GRID COORD:	TRATE	твенсино: <u>тр_5</u> н в и в и в то <u>9</u> гт deep		
	END			
CONTITOL MONUME ELEVATION, TOP OF		NO:NEN		
		TPENCH LENGTH FT)		REMARK
BTRATA CHUNGE OF WATER LEVEL	DEPTH	• • 4 6 8 10 12 13 14	DRUM QUANTITY	NO.
		Dark brown siltry sand, 0-6" topsoil		
	1	trace brick trace wood		
		sand		
	_2	metal wire		
		bricks - numerous wood debris, construction debris minor sand, bricks wires]
	_3			<u> </u>
<u> </u>	4	concrete, bricks woodplastic_tubes, under_block		<u> </u>
	· ·	wood, dry, little sand matric radiator		
	5			
	6			
	8			
Ì	9	end of wood & bricks - gray sandy silt	 	ļ. ———
	 	Circ Of Hood & Belond 4247 Banky Bale		

	ļ			
	\vdash			
	 			
	<u> </u>			<u> </u>
no		bris, no water noted eadings at any time during this excavation		

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					TF	RENCH LOC	3 FORM						
ייייייייייייייייייייייייייייייייייייי	e m	N					1	. 1					
MENT: U	imco D	ump. Pha	se II				EET 1 OF		Donohue				
MIDJECT NO: 201						TRE	BY; <u>K</u> ENCH NO.: <u>T</u>	06					
GIND COOPID.:	TRATE	- H E		E			ENCH LENGTH:		4.5 ft	deep			
CONTROL MONUME ELEVATION, TOP OF	NT GRID CO			HE_	-								
STRATA CHANGE OF WATER	DEFTH		T		T		ENGTH (FT)	12	1	14	1 16	DRIM	REMARI NO.
IEVEL		2	cilty (4 gand w/ ga	brbage: g	8	10		debris	1		COAMINY	
	1	DLOWII	SIICY S	brick		Idaa, pic	SCIC, CO	115, 400	C GENETS	<u>, </u>			l
		1.5 sa	al, dar	ck brown -	- black,			sand					
	_2				wood lo				<u>icrete tr</u>	ace asph	alt		
				<u>per trace</u>	asphalt	blade bit	uminous	sand and	gravel	****		- 	<u> </u>
	4		and- ace asph		 	ncrete 4	x3' tire	COL	crete 4'	X3°X3°	· · · · · · · · · · · · · · · · · · ·	 	{
			ace aspi	IGIL		lictere 4	V2 CITE	Water	pocket)_	····		 	<u> </u>
											******		1
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	<u> </u>						<u> </u>		······································			- 	1
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	20						 			 			
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		TRENCH LOG FORM		
GOLOVIC assessed				
CLENT: U.S		eneer 1 of 1 EXCAVATOR Mathes		
PROJECT NO: 20	026_02	tog By: K. Elias		
DATE: 09-	13-91	TRENCHINO; TL-Z		
G/IID COOAD.;	BTARI END			
CONTROL MONUM				
LLEVATION, TOP O	FIRENCIL			
STRATA CHANGE	T	TRENCH LENGTH (FT)	DRUM	REMARK
OF WATER LEVEL	DEPTH	1 2 3 4 5 6 8 10 12 13	DUMIN	NO.
	1	silty sand rop soil 0 - lft., roots gravel	PPM	
	1		OVA	
	<u> </u>	plastic by products l' thick laues - pushed out white line/calcium carbonate - powder like, hard	70000	<u> </u>
	2_	white line/ calcium carbonate - powder like, nard	30ppm	
	 3	water pouring in at spots @ 2.5 ft & 3ft black soil rubbel: bottles, plastic strips, bags, wood		
		cardboards	60	
	4	waterfill to 4ft., black water, let fill trench pre sampling	_60 pp r	
	5	black soil: w/ rubbel, wet, rubbel 45% of trench		
ļ	 		200pm	7
l	6	logs		bucket
	7			
1			<u> </u>	ļ
	8			
	-}			
	1			
	20		<u> </u>	
ļ				
	25			
	2.5	<u> </u>		l

Level B. Trench, leachate collection. mills sampling also OVA Average '100ppm in BZ Water filled in from several seap areas int he trench

		TRENCH LOG FORM		
Donohue				

CLENT: U.S	. EPA	no/Phase II of 1 EXCAVATOR VAITHES		
hhorect: <u>HTM</u> huorect no: 50	CO DUIT	100 BY: K. Elias		
DATE: 09-	12-91	TRENCHINO; TL-3		
GHU COORD.;	BTARTE END			
CONTROL MONUME		V		
ELEVATION, TOP OF	TRENCH			
STRATA CHANGE	DEPTH	TRENCH LENGTH (FT)	DRUM	REMARK
OF WATER LEVEL	CEPIN	1 2 4 6 8 10 12 14 15	CUANTITY	NO.
		Brown moist. sand with trace silt, roots, topsoil		
·		(SP) fill		
·	2	sand, brown, fix - medium , bricks numerous	 	
		black soil or asphalt and sand mixture	1	
	3			
	4	blue/black material - sand mixture w/ gravel may have asphalt or petroleum or bituminous mixture in sand	 	
	 	mutted, black/brown sand moist.	 	
	5	metal, drum flattened cobbles, heulters	1	
	6	moist/wet gray sand (SW) fine - coarse		
	7	builders /wood 1/2' x 6' / logs / bricks/ w/ blk sd.	 	 -
·	 	During 1/2 1/5 1/5 1/5 1/5 026	1	
	8	· · · · · · · · · · · · · · · · · · ·		*
	10	gray brown sand, moist., trace gravel	ļ	**
} 	1-10	no debris	 	
	12	110 debi15	 	
	13			
	14			
	15	trace water infiltrating in @15ft (caning in, therefore	·	
		widen trench)	 	
	.1		J	1
		20 ppm on OVA - Breathing zone, ** = 100ppm on OVA Breathing zone		
		ted soil samples @ 2ft & 6ft intervals		
j b	ottom	at 19ft, could not go deeper, would cave back in & up to 16ft	-	
Ι.				

ſ <u>.</u>					TR	ENCH LO	FORM				······································	,	
Denellus													
CLIENT:	U.S. E	PA .				84	EET_1_	_of 1					
PHOJECT:	Himco	rump/Phas	se II			EW	MATANA	Matnes]
PROJECT NO.:	20026)23				LO	3 BY:	V. CIIGS	· · · · · · · · · · · · · · · · · · ·				
DATE:		21				. TAI	ENCH NO.:	t 14 FT TO	6 5	doop			
GAND COORD.:		· N E	N	<u>_</u>	_	16	ENCH WIDTH	6'		ueep			
CONTROL MON		OORD.: H		E	_	•				······································		,	
ELEVATION, TO	P OF TRENCIE							•					
BIRATA CHAN	O.E.					TRENCHI	ENGTH (FT)		***************************************			ORUM	REMARK
BTRATA CHAN OF WATER LEVEL	DEFTH	1	2	3	4	5	8	9	10	12	14	- COMMIN	MO.
		black	brown or	ganic to				merous roo	tlets	.L			
j				_						• • • • • • • • • • • • • • • • • • • •			
		sand v	a/ silt 8	gravel	sark brow	m/black	numer	ous bricks	, wood		·		
	2	bricks	s, wood,	metal pi	pes, deb	ris							5ppm
				ncrete s			,				•		
	3		ir	sand ma	trix								
	4							···					ļ
	5	water	pouring	in @ 5ft	., - fill	ed to 4.	ļ						10ppm
		botto	m hole 61	Et									<u> </u>
							 						
	15												<u> </u>
		ļ	 						······································				
		ł ————				······································	}						·
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	20_	·					 	·					-}
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	25]					1					_	1
		•											-
HEIMANUKO.	•						_				•		
	Collec	ted leac	hate sam	ples & di	uplicates	. Level	B pro	tection		_			
			owed into	o trench	at one s	pot (6"	x4").	The flow	was ste	ady			
I	_till_4	.5 ft.						_					

		TRENCH LOG FORM		•
Ponohius Altenti: HOUSECT: HOUSECT NO: DATE: SONO COOPID:	U.S. E. Himeo J 20026.	Dimo EXCAVATOR Mathes 023 LOG BY: K. Elias 91 TRENCH NO: TL-5	-	
MAD COORD.:		MENETRENCH WOTE 7'		
CONTROL MONAME		DOPD: H E N E		
BTRATA CHANGE	THENCE	TRENCHLENGTH FT)		
OF WATER	DEPTH	1 2 3 4 6 7 6 0	DRUM QUANTITY	REMAR NO.
		brown silty topsoil, roots, gravel tree	WA	
	1			
		rubbel bent drum empty	30ppm	
	2_	wood sheetings, plastic debris	=AVG	·
	-3	DRUM black, black material, asphalt mixture w/ sand base layer	max=	
	1	stay like	100ppm	il
	4	water seeping in slowly at one spot smashed		
	ļ	DRUM		-
· 	5	sandy - brown & black		
				1
	6	leachate filling in - red/brown thick		
	8	water/leachate sand - tan		
	\ 	water/leachate sand - tan		
	10			
	12	GRAY TAN SD:		_
	1-44-	GRAI IAV SU.		
	 			
	·			
		1	1	·
	25		-	1

		TRENCH LOG FORM		
LIENT: U.S. ROJECT: HIMCO. ROJECT NO: 200 ATE: 09-13- RID COOPID: CONTROL MONUME	D.IIID 126, (123 -9] STARTI END	-NENETRENCH WOTH: 71		
LEVATION, TOP OF BTRATA CHANGE OF WATER		TRENCHLENOTH (FT)	DRUM	REMAR
OF WATER LEVEL	DEPTH	2 4 8 10 15	CONTINUITY	NO.
		brown silty sand, trace gravel, roots, moist./toppoil	OVA 20	
		nubbel: black, plastics, cardwards, insulation, sand matrix, black	 	
	2	Titlet, timer, timester, the control is an incident the control of	B.2.	
	•	hlack, plastics, sheets, 1/2" thick, rubbel 80% (water packet)	70ppm	
	3	rubbel	 	
	4	tan sand		<u> </u>
	5:	gray tan sand (SP) f - medium, trace coarse	ļ	ļ
	6	trace gravel	╁┷┷	ļ
	7		1	
	8		 	ļ
	- -		 	
	10			
	12		 	
	 		 	
	14		 	
	25		 	
	1		J	l
area	as, sl	te collected, Rubbel 2-4ft., leachate was seeping in at two owly. Notsufficient to collect a sample n breathing zone 15ft. from trench		

	· · ·	TRENCH LOG FORM		
Oppolies				
#16*****	U.S.	EPA WEET 1 OF 1		1
CLIENTI PROJECT:		Dump, Phase II BECAVATOR Mathes; C.G.		
	20026			
PROJECT NO.:	69-13	TRENCH NO.: TL-/		
GRID COORD:	START	-MENE IRENCHLENGTH: 17 FT to 15 FT deep		
	END			
CONTROL MONAME ELEVATION, TOP OF		ORD.: N EN E		
ATRATA CHANGE		TRENCH LENGTH (FT)	DRUM	REMARK
OF WATER LEVEL	DEPTH	2 4 6= 7 8 9 10 12 15 17	OUNTITY	NO.
		(SP) silty sand, brown, damp, roots	0	
	1	(glass bottle) mottled vellow brown (gray sand) reddish brown	 	
		mottled yellow brown (gray sand) reddish brown	├ ──	
	2		 	
		gray sand, mottled	·}	
	-3-	gray Said, libected	 	
· · · · · · · · · · · · · · · · · · ·	1	light tans sand, f - m fill	 	
	5			
			·	
ļ	6		 	!
}	7	plastic bag-black		
 	1	Diastic pag-plack	 	
	8		 	
	1		 	
	9			
	10		<u> </u>	
	 		 	
	12		 	
	14	grav, well graded sand	 	
	15	MINT WELL WALLES STATE	1	<u> </u>
 	1_1_	<u> </u>	_	·
HEMAHAS:	No	nter in hole, 15ft. deep, sand caved in : 1:1 grade		
1	NO We	eachate sample located		
Ì	NO TE	achate sample located		

APPENDIX B SELECTED BORING LOGS

	HTW [DRILLING L	_OG		HOLE	NO 4
COMPANY NAME, USACE		2. DRILLING	SUBCONTRACTOR		SHEET	
FROJECT Himas Supert	and Site		4. LOCATION EIK	Chart-		> SHEELS
NAME OF DEBLIER	Jim Bosc	h	6. MANUFACTURER'S C			
SIZES AND TYPES OF DRILLING GUS	Pach 1100c k	Lig.	8. HOLE LOCATION	<i>x</i> (1(00)	<u> </u>	
con	itinuous si	s" dia 5'	9. SURFACE ELEVATIO	N .		
	NU PT 101 STMX 411		10. DATE STARTED		I. DATE COMPLETED	
P. DVERBURDEN THICKNESS	81	<u> </u>	IS. DEPTH GROUNDWAT		8-28-95	
3. DEPTH DRILLED INTO ROCK	<u>Ø</u>		I	AND ELAPSED TIME AF		ED
. TOTAL DEPTH OF HOLE	8'		17. OTHER WATER LEV	EL MEASUREMENTS (SP	ECIFY)	
. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUM	BER OF CORE BOXES		
O. SAMPLES FOR CHEMICAL ANALYSIS	voc	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	2L TOTAL CORE
				·		RECOVERY 2
2. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF IN	ISPECTOR R	2
1.	with cuttings	FIELD SC	REENING GEOTECH SAM		BLOW DI	
.a. b.	PTION OF MATERIALS		ALTS OR CORE BOX	NO. SAMPLE NO.	g.	REMARKS
) Top soil, ro	oots, moist ned dense	, dark Back HNU	ground			regelation – grass, –
- Poorly gra	ded sand (I .	nits		Tras	h towards –
gravel,	ded sand (nd black noist, med.	dense LEL	20.7°/. 0°/.		the e	ast about [
foorly grac	ted sand (s	(9)			פאספס	eddrum, =
moist, m	ed, dorkbried, dense some fine	rwn			WTILL	vest of =
· · →	some tine	<u>-</u> ا		'	WT	IIU B
Poorly grad	ed sand (st	D				
brown ta	m black, g n and pin				_	<u> </u>
- pieces of	woodupto 4	"long, HNU	cuits		4.0	overy E
I - in dia.	plastic ret	use "	20.8%		, Kec	E
- Tourd -	'somo areas e ashes	H LEL	0%			
						E
4-=						
] =						Ė,
기_ 를						
5	ECT		1 0		HOLE NO.	
	Himco	JuperFu	nd Site	>_	· B	•

	·	HTW DRILLIN	G LOG			<u></u> .	HOLE NO.
PROJECT	Hime	o Superfund Site	SPECTOR Chell	le Bena	<u>. </u>		SHEET 2) OF 2 SHEETS
ELEV.	DEPTH b.	DESCRIPTION OF MATERIALS C.	FIELD SCREENING RESULTS d.	GEOTECH SAMPLE OR CORE BOX NO B.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g.	REMARKS
	!	concrete - black asphalt mostly solid, wet	87 HNU6 writs	ł			rec = = = = = = = = = = = = = = = = = = =
	١١١١١١٥	Black, organic type of material, Soft, wet, resembles a peat material	LEL- 0%				Augers pulled produced a black like studge
*	7	matelial					11:53 am =
,	8 -						8.0' B.O.H.
)	9				·	-	
	آسالسل <u>،</u>						
	ë mludu						
	[] 						
)(
		MOJECT HITTICE Supe	rfund S	site		HOLE N	0. B-4

						: MO: F	NC.
HTW (ORILLIN	G LOG					اناله ك
-	2. D	RILLING SUBCONT	RACTOR			SHEET	
	<u>+</u>	4. LOCA	TION EIV	bant	TAI		SHEE 12
rational ac	<u></u>	6. MANU			<u> エル </u>		
ssey		G	sus Pec	h 1100	00		
		9. HOLI	LOCATION			-	
o 14 nch a	spons	9. SURI	FACE ELEVATION	-			
					TE DATE CON	DI CTED	
		LO		-95	8 -		95
		IS. DEP	TH CROUNDWATE	R ENCOUNTERED			
		I6. DEP	TH TO WATER	Ment May	MANE Tro	LOPED L	valer
<u> 8</u>	<u>.</u>	8-16	-95 la	:40 pm 9.5	s' 8-17-9	15 7:3	5am 7.6
58. 0¹		17. OTH	er water leve ·18-95	IL MEASUREMENTS (9:00am	10.9'		
DISTURBED	UNDIS	TURBED !	9. TOTAL NUMB	ER OF CORE BOXES			
Voc	METALS	OTHER	(SPECIEV)	OTHER ISPECIEVE	OTHER IS	PECIETY	2L TOTAL CORE
			13.225,17	• • • • • • • • • • • • • • • • • • • •	1		RECOVERY
BACKEN LED	MONITORING T	FLL OTHER	(SPECIEV)	23. SIGNATURE OF	INSPECTOR		ž.
DAGNI ILLES		0	13. 24. 17	Mich	.000	R	nak
	<u> </u>	TELO SCREENING	GEOTECH SAME				
SCRIPTION OF MATERIALS					COUNTS 9-	RE	EMARKS h.
1 - vegeta	ted,	Backgrun	t				
		HNU 2.6				l	
		02 20.89	7				
•		ucc 07.	ĺ	.]		ı	
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	Į.	•		1.			
					·	wate	e at
					-	wate 2.4	e at
						wate 2.4	e at
						wate 2.4	e at
						wate 2.4	e at
						wate 2.4	e at
	1	BZ			-	wate 2.4	e at
conalomera	to. H	1NU-3.2			45		
, conglomera terístics, gr	to. H	Nu-3.2 Units			65	n =	- 73
conglomera eristics, gr plack, more	te rey	c.s-unl etinu 1806-cC				n =	
teristics, gr black, more up to	te rey	Nu-3.2 Units			65	n =	- 73
conglomera teristics, gr plack, mois up to 2 ery dense	te rey	c.s-unl etinu 1806-cC			8	n =	- 73
teristics, gr black, more up to	te rey	c.s-unl etinu 1806-cC				N= rec	- 73
	SSELF LUS PECH 1/6 LUS PECH	2. D Perfund Site Ssey Lus Pech 1/00C. Right spech Ly I inch augers Ly I dia solit spech Moder with 140" ham R SPT HNU PI 101 PT IS TMX 410 CGI 58.0' DISTURBED UNDER VOC METALS BACKFILLED MONITORING SCREPTION OF MATERIALS C.	SSEY SSEY LUS PECH 1/OOC RIGE LUS PECH 1/OOC RIG	2. DRILLING SUBCONTRACTOR 2. DRILLING SUBCONTRACTOR 4. LOCATION EIK 6. MANUFACTURER'S DE GUS PEC GUS PEC 6. MANUFACTURER'S DE GUS PEC 6. MANUFACTURER'S DE GUS PEC 6. MANUFACTURER'S DE GUS PEC 8. HOLE LOCATION 9. SURFACE ELEVATION WOLE WITH 140 PION PION 15. DEPTH CROUNDWATE 7. OTHER WATER LEVE 8. DEPTH TO WATER A 8. 16-95 12 17. OTHER WATER LEVE 8. 18-95 DISTURBED UNDISTURBED 19. TOTAL NUMBER VOC METALS OTHER (SPECIFY) BACKFILLED MONITORING WELL OTHER (SPECIFY) SCRIPTION OF MATERIALS C. FIELD SCREENING CECTECH SAMP RESULTS OR CORE BOX 6. CORE BOX 6. CORE BOX 1. LOCATION 6. MANUFACTURER'S DE GUS PEC 19. SURFACE ELEVATION 15. DEPTH CROUNDWATE 8. DEPTH CROUNDWATE 8. DEPTH CROUNDWATE 9. SURFACE ELEVATION 17. OTHER WATER LEVE 18. DEPTH CROUNDWATE 19. TOTAL NUMBER 18. DEPTH CROUNDWATE 19. TOTAL NUMBER 18. DEPTH CROUNDWATE 19. TOTAL NUMBER 19. TOTAL N	2. DRILLING SUBCONTRACTOR 2. DRILLING SUBCONTRACTOR 4. LOCATION EIK NOWT 5. MANUFACTURER'S DESIGNATION OF DRILLING SECOND 1/00 6. MANUFACTURER'S DESIGNATION OF DRILLING SECOND 1/00 6. MANUFACTURER'S DESIGNATION OF DRILLING SECOND 1/00 6. MANUFACTURER'S DESIGNATION OF DRILLING SECOND 1/00 8. HOLE LOCATION 9. SURFACE ELEVATION 15. DEPTH CROUNDWATER ENCOUNTERED 16. DEPTH TO WATER AND ELAPSED TIME 1/00 17. OTHER WATER LEVEL MEASUREMENTS OF 1/00 18. DEPTH TO WATER AND ELAPSED TIME 1/00 19. TOTAL NUMBER OF CORE BOXES 10. OTHER (SPECIFY) 23. SIGNATURE OF MICH. 24. OTHER (SPECIFY) 24. SIGNATURE OF MICH. 25. SIGNATURE OF MICH. 26. OTHER (SPECIFY) 27. SIGNATURE OF MICH. 28. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 29. OTHER (SPECIFY) 20. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 20. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 21. SIGNATURE OF MICH. 26. OTHER (SPECIFY) 27. SIGNATURE OF MICH. 28. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 29. OTHER (SPECIFY) 20. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 20. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 21. SIGNATURE OF MICH. 22. SIGNATURE OF MICH. 23. SIGNATURE OF MICH. 24. OTHER (SPECIFY) 25. SIGNATURE OF MICH. 26. OTHER (SPECIFY) 27. OTHER (SPECIFY) 28. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 29. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 29. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 29. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 20. OTHER (SPECIFY) 29. SIGNATURE OF MICH. 20. OTHER (SPE	2. DRILLING SUBCONTRACTOR 2. DRILLING SUBCONTRACTOR 4. LOCATION ELK NOW IN INC. 6. MANUFACTURER'S DESIGNATION OF DRILL 6. MANUFACTURER'S DESIGNATION OF DRILLING 6. MANUFACTURER'S DESIGNATION OF DRILLING 7. IV OCC NOTE OF DRILLING 8. MOLE LOCATION 9. SURFACE ELEVATION 10. DATE STATED 10. DATE COM 8. DEPTH GROUNDWATER ENCOUNTERED 2. Y COMMENT MADULE FOR DRILLING 8. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 8. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 8. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 8. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 8. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER LEVEL MEASUREMENTS ISPECTIVI 9. 18. DATE COM 17. OTHER WATER AND ELAPSED TIME AFTER DRILLING 18. DATE COM 19. DATE COM 19. DATE COM 10. D	2. DRILLING SUBCONTRACTOR 2. DRILLING SUBCONTRACTOR 4. LOCATION ELK NOW IN SSELT 6. MANUFACTLIRER'S DESIGNATION OF DRILL GUS PECH 1/00C Rig 8. MOLE LOCATION 1. LY INCH AUGUSTS 9. SURFACE ELEVATION 1. DATE COMPLETED 2. STAN 410 CGI 15. DEPTH GROUNDWATER ENCOUNTERED 2. 4' CEMENT MOLE ATTER DRILLING GOWNETE 8. DEPTH TO WATER AND ELAPSED THE AFTER DRILLING GOWNETE 8. LOCATION 10. DISTURBED 11. OTHER WATER LEVEL MEASUREMENTS (SPECIFT) 2. SUPPLIED INDISTURBED 12. TOTAL NUMBER OF CORE BOXES 13. TOTAL NUMBER OF CORE BOXES 14. LOCATION 15. MANUFACTLIRERS 16. DATE COMPLETED 16. DEPTH GROUNDWATER ENCOUNTERED 2. 4' CEMENT MOLE AFTER DRILLING GOWNETER 8. LOCATION 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFT) 18. DATE COMPLETED 2. 4' CEMENT MOLE AFTER DRILLING GOWNETER 8. LOCATION 17. OTHER WATER LAVEL MEASUREMENTS (SPECIFT) 18. DATE COMPLETED 19. TOTAL NUMBER OF CORE BOXES 19. TOTAL NUMBER OF CORE BOXES 10. OTHER (SPECIFY) 10. DISTURBED 10. DISTURBED 11. OTHER (SPECIFY) 12. SIGNATURE OF INSPECTOR 13. SIGNATURE OF INSPECTOR 14. LOCATION 15. DEPTH GROUNDWATER ENCOUNTERED 16. DEPTH GROUNDWATER ENCOUNTERED 17. OTHER (SPECIFY) 18. DATE COMPLETED 19. DATE COMPLETED 19. TOTAL NUMBER OF CORE BOXES 10. OTHER (SPECIFY) 10. DISTURBED 10. OTHER (SPECIFY) 11. OTHER (SPECIFY) 12. SIGNATURE OF INSPECTOR 13. COLOTION 14. COLOTION 15. DEPTH GROUNDWATER ENCOUNTERED 16. DATE COMPLETED 17. OTHER WATER AND ELAPSED THE AFTER DRILLING GOWNETER 19. TOTAL NUMBER 10. DATE COMPLETED 11. DATE COMPLETED 11. DATE COMPLETED 12. DATE COMPLETED 13. DATE COMPLETED 14. DATE COMPLETED 15. DATE COMPLETED 16. DATE COMPLETED 17. DATE COMPLETED 18. DATE COMPLETED 19. DATE COMPLETED 19. DATE COM

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e h	HTW DRILLIN	IG LOG		WTILB
PROJECT	Superfund Site	INSPECTOR Michella Ber	naK	or 7 SHEETS
DEPTH b.	DESCRIPTION OF MATERIALS	FIELD SCREENING CEOTECH SAMPLE OR CORE BDX NO G.	ANALYTICAL BLOW SAMPLE NO. COUNTS f. Q.	REMARKS
	Psorty graded sand (SP) moist gray, loose time to med grained. Organic Soil (OL/OH) some roots present, black moist, medium stiff		1 00 BE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	n=6 Rec. 1.4
13 14 1 1 1 1 1 1 1 1	Poorty graded sand (SP) loose, med grained, wet, grey 500 grave	superfund Site	BZ HNU 1.0 0 = 2096 LEL 0% 2	n=3 Rec. 1.51 WT1168

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UEGT.	HTW DRILLIN		7, 3	. V		MTILG B
DEPTH	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO	ANALYTICAL SAMPLE NO.	BLOW COUNTS	OF SHEETS
	No recovery	d.	•	BZ HNU 1.2 Units O2 20.9%		n=2 rec. no recovery
	Poorly graded sard (SP) med dense, grey, med coarse, wet				4	

- do	HTW DRILLING					WTILLB	
PROJECT	Superfund Site	Michelle	Benak	,		SHEET H	_ •
DEPTH D.	DESCRIPTION OF MATERIALS G.	FIELD SCREENING RESULTS d.	GEOTECH SAMPLE OR CORE BOX NO 6.	ANALYTICAL SAMPLE NO. f.	BLOW COUNTS G.	REMARKS h.	
	10°10 gravel	82 HNU 1,2			8	n=20	
		02 20.91 LEL 090			12	Rec.	
25							
	·		-				
26_=							
27							
						·	
28							
	foorly groded sand (SP) grey, wet med coarse (Same as above)	82 HNU 1.4			9	N=10	
29	(Same as above)	02 20.9%			7	rec. 1.41	
		LEL 0º10		·	3		
30							
31						·	
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) 33				1			
) 35							
	PROJECT Himco Sie	perfur	d Site		HOLE	10. WT1168	

6.00	HTW DRILLIN			WTII6B
Hima Su	perfund Site	NSPESTOR Wichelle Benak	<u> </u>	SHEET S
DEPTH b.	DESCRIPTION OF MATERIALS C.	FIELD SCREENING GEOTECH SAMPLE OR CORE BOX NO G.	ANALYTICAL BLOW SAMPLE NO. COUNTS f. 0.	REMARKS
35 — Poo		82 HNU i.b Units 02 205% UEL 0%	3	Segin 8-17-95
\$ [millini] millini	rly grodod sand (SP) ose (Same as above)	8= HNU .8 Units 02 208% LEL 0%	- m m	n=6 rec.=1.5
41 — 42 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1	PROJECT Himco Sur	perfund Site	MOLE M	WT1768

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4 64 *	HTW DRILLING					HOLE NO.	
PROJECT	o Superfund Site "	SHEET 6	•				
FLEV. DEPTH	DESCRIPTION OF MATERIALS C.	FIELD SCREENING RESULTS d.	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f.	BLOW COUNTS Q.	REMARKS	
49	Poorly graded sand (SP) med dense same as above		BZ Breathing Zone) HNU-3:3 Let 0%		8 10	n=15 rec. 1.5'	
45	•				5		
47	(Same as above) loose		HNU : 8 to 10 2 208% LEL 0%		5	n= 9 rec.=1.5'	
) 8 8 9 11111111111111111111111111111111		·	70		5		
							E
*****************	PROJECT Himco Su	perfun	i Site	*******	HOLE	· WTIILB	
-		U					

Poorly groded sand (SP) fine grained, brown wet, loose Sologory Poorly groded sand (SP) fine grained, brown wet, loose Sologory Poorly groded sand (SP) fine grained, brown wet, loose Sologory Poorly groded sand (SP) fine grained, brown Sologory Poorly groded sand (SP) Sologory	4-24-2		HTW DRILLIN					WTILES	
poorly graded sand (SP) foorly graded sand (SP) fine grained, brown wet, loose poorly graded sand (SP) for gravel, such as above, coorse grained poorly graded sand (SP) fine grained, brown set BZ HNU-20 D2-20376 BZ HNU-20 D3-20376 BZ Fec. = 1.5' BO. H. 58' BO. H.	PROJECT	meu	Superfund Site.	NSPECTOR. LICKE	ile Ber	va K		· '].
Poorly graded sand (SP) St. graved Sand (SP) Forly graded sand (SP) Fine graved sand (SP) Fine graved sand (SP) Forly graded sand (SP) Forly gra	1 1	DEPTH	DESCRIPTION OF MATERIALS	RESULTS	OR CORE BOX NO	SAMPLE NO.	COUNTS	l .	
Poorly graded sand (SP) HNU 1.0 10% gravel, wet, loose, grey 10% 3 10		3	Poorly graded sand (SP) 5°10 gravel same as above, coarse grained med.	4,00-20			a		
10°10 gravel, wet, 100se, grey 100se, grey 151) 5	7						В.о. н. <i>5</i> 8¹	
PAROJECT Himeo Superfund Site HOLE NO. WTILL B	6			HNU 1.0 Unit 02 20178 LEL 0%			က က	n=6 rec.=1.51	

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